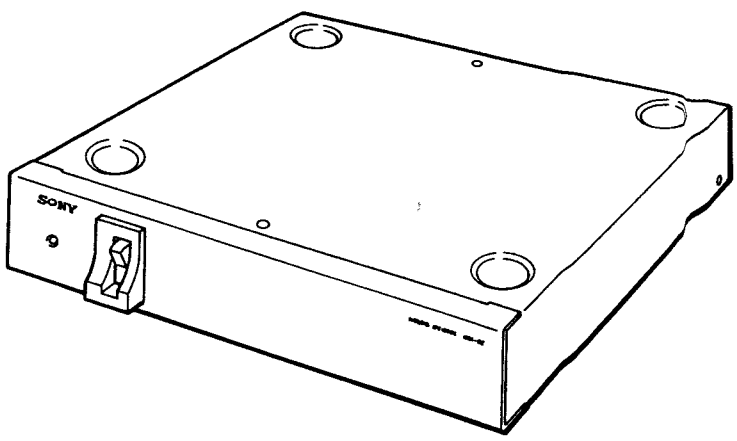
SONY

CAMERA ADAPTOR

CMA-D2/D2CE

SERVICE MANUAL



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SAFETY RELATED COMPONENT WARNING !!

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual of in supplements published by SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer : Check the metal trim, "metallized " knobs, screws, and all other exposed metal parts for AC leakage.Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig.A)

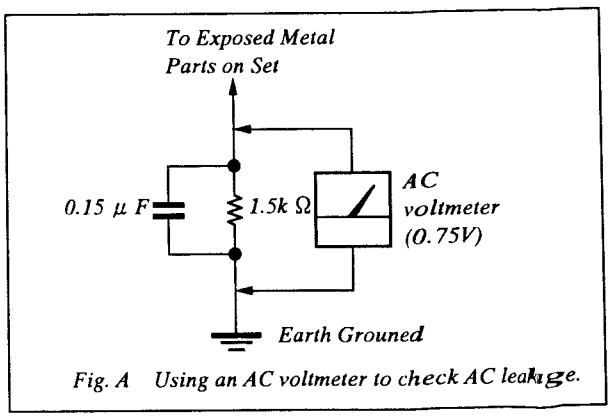


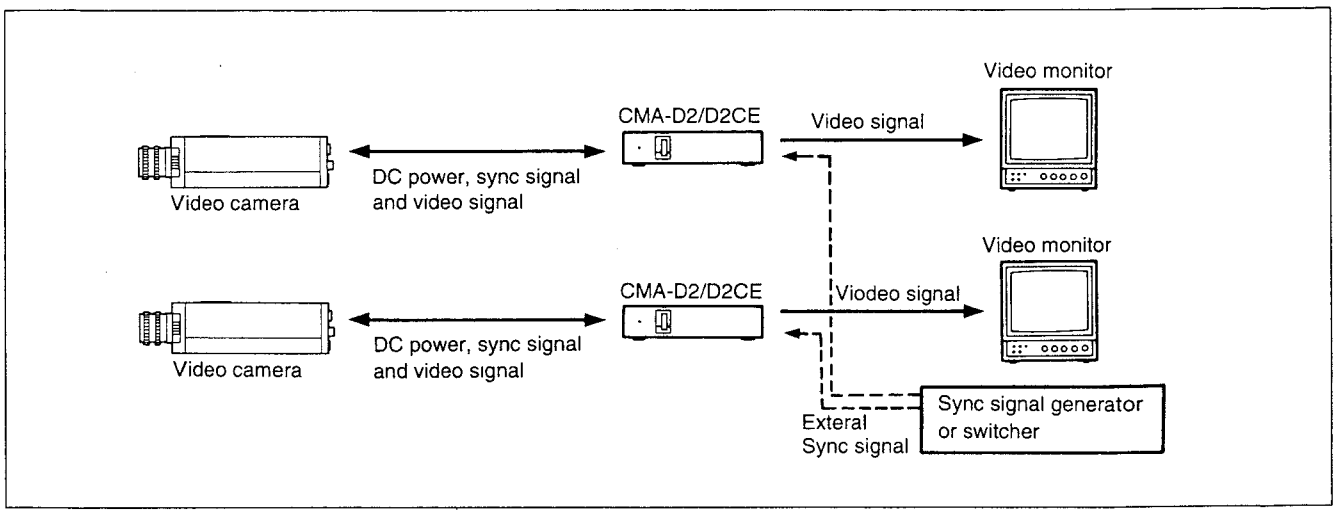
Fig. A Using an AC voltmeter to check AC leakge.

SECTION 1
GENERAL

Overview

The CMA-D2/D2CE camera adaptor is designed to be used with the following Sony video cameras.

- AVC-D5/D7, AVC-D5CE/D7CE
- DXC-107/151/930/960MD, DXC-107P/151P/930P



System application example

Precaution on Use

Safety Precautions

Power supply

- The unit is designed for operation on a power supply meeting the requirements indicated in the "Specifications" on page 9.
- Do not drop or place heavy objects on the power cord. If the power cord is damaged, turn off the power immediately. It is dangerous to use the unit with a damaged power cord.
- Disconnect the power cord from the AC outlet by grasping the plug, not by pulling the cord.

Keep foreign objects out of the cabinet

Dropping flammable or metal objects into the cabinet, or spilling liquids nearly can lead to accidents.

Handling Precautions

Location

Do not store or use the unit under any of the following conditions.

- In excessive heat or cold
- In direct sunlight or near heater
- In damp or dusty locations
- In locations subject to vibrations
- Near strong magnetic fields
- Near television or radio station generating strong radio frequency energy

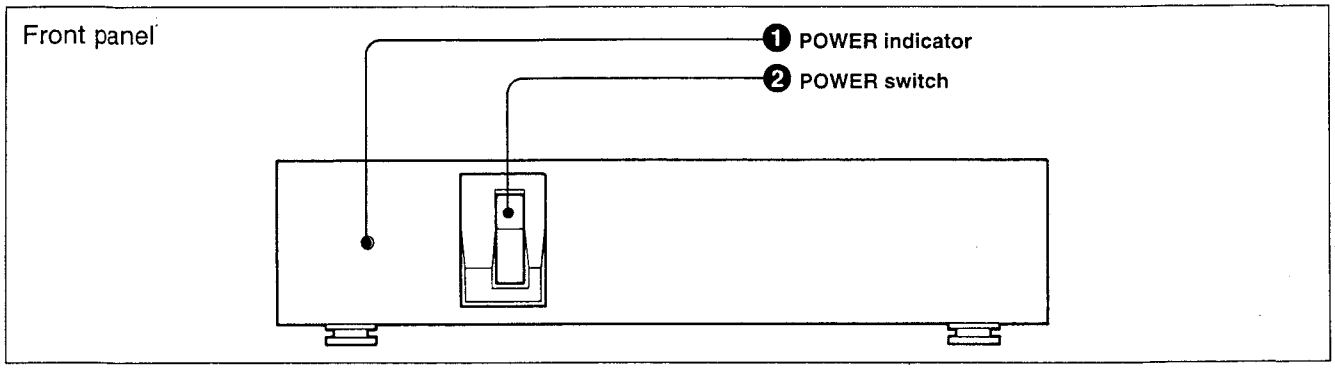
Protect from impacts

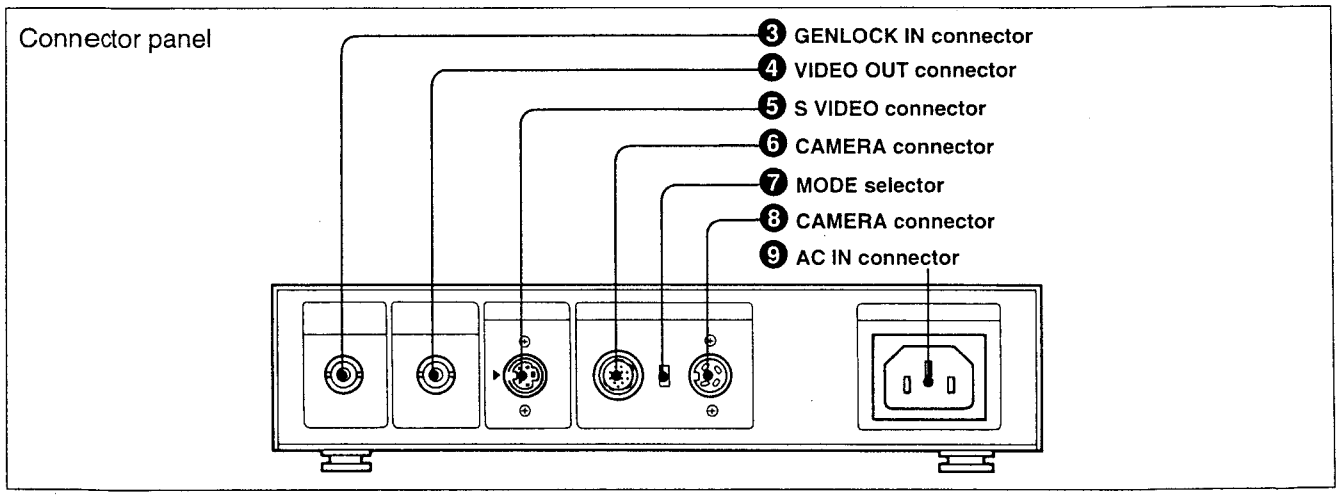
Do not drop the unit or subject it to severe shocks.

Cleaning

Clean the cabinet and panels by wiping with a soft, dry cloth. For severe stains, moisten the cloth with a small amount of neutral solvent, and finish by wiping with a dry cloth. Do not use alcohol, benzine, thinners or volatile liquids, as these may discolor or damage the cabinet surface.

Location and Function of Parts





Front panel

1 POWER indicator
Lights when you set the POWER switch 2 to ON.

2 POWER switch
Set the switch to ON to turn on the power.

Connector panel

3 GENLOCK IN connector (BNC type)
Inputs the external sync signal (VBS = Video, Burst, Sync or BS = Burst, Sync). Connect to the sync output connector for synchronization when using two or more cameras.

Whether the sync signal is input depends on the video camera and cable being used.

To confirm whether the sync signal is being input, see "Connections" on pages 5 to 8.

4 VIDEO OUT connector (BNC type)
Outputs the video signal from the camera.

5 S VIDEO connector (Mini DIN, 4-pin)
Outputs separate Y and C signals. Output of the separate Y and C signals depends on the video camera being used.

For detailed information, read the instruction manual of the video camera.

6 CAMERA connector (12-pin)
Outputs DC power and the video signal and inputs external sync signal. The output/input signal depends on which camera is connected.
Connect to the DC power input connector of the camera using the CCMC-12P02/05/10/25 camera cable.

7 MODE selector
In most cases, set the selector to the upper position "1". When connecting the unit to the DXC-930/930P/960MD with the CCMC-12P02/05/10/25, set the MODE selector to the lower position "2".

For details, see "System to supply DC power and output the video signal" on page 8.

8 CAMERA connector (4-pin)
Outputs the DC power.
Connect to the DC power input connector of the camera using the CCDC-5/10/25/50/100/50A/100A camera cable.

9 AC IN connector
Connect to an AC power source using the AC power cord (supplied).

Connections

General

Applicable cameras

You can connect the following Sony video cameras to the unit.

- Black and white video camera:
  AVC-D5/D7, AVC-D5CE/D7CE
- Color video camera:
  DXC-107/151/930/960MD, DXC-107P/151P/930P

Usable camera cable

The following two camera cables can be used to connect the unit to a video camera.

- CCMC-12P02/05/10/25 (12-pin connectors)
- CCDC-5/10/25/50/100/50A/100A (12-pin and 4-pin connectors)

Note when connecting cameras

The system may be in trouble when connecting two cameras by using both CCMC and CCDC camera cables at the same time.

Input/output signals

The unit outputs the video signals and inputs sync signals depending on the connected camera and cable being used, as shown in the diagrams for connections on the following pages.

Mounting the unit in a rack

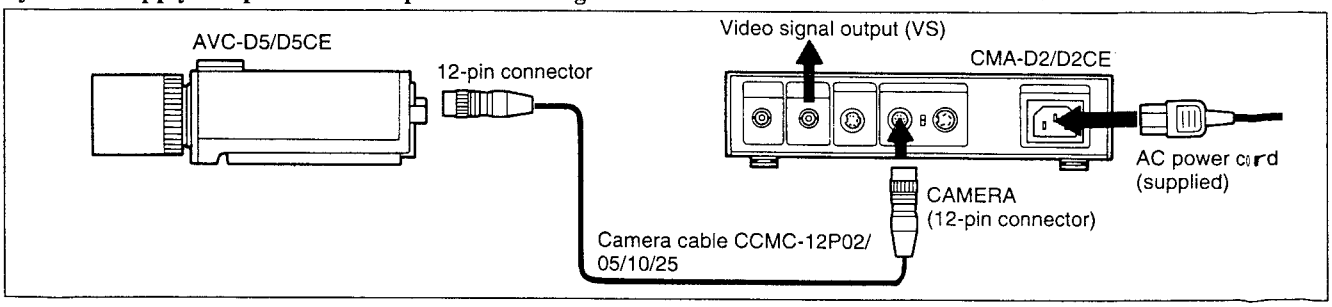
You can mount the unit in the 19-inch rack using the RMM-1800 rack mount adaptor (not supplied).

Connection Examples

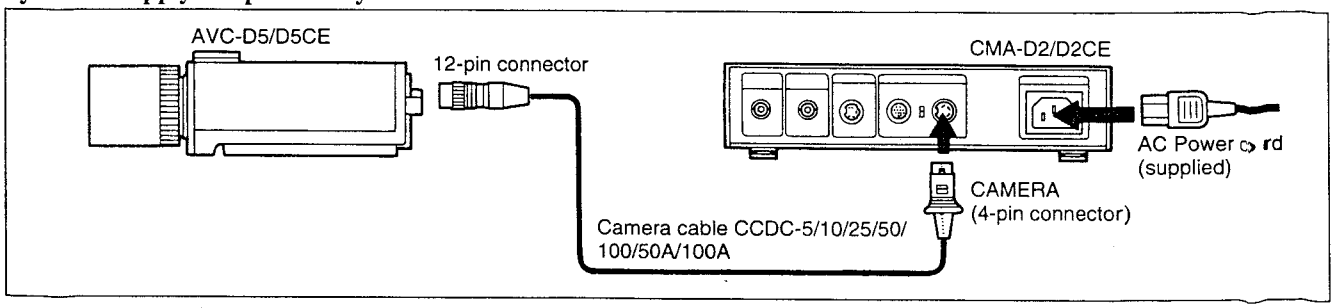
Notes on connection Turn off the power to the unit before making any connections. Otherwise, the unit may be damaged.

When connecting the AVC-D5/D5CE

System to supply DC power and output the video signal

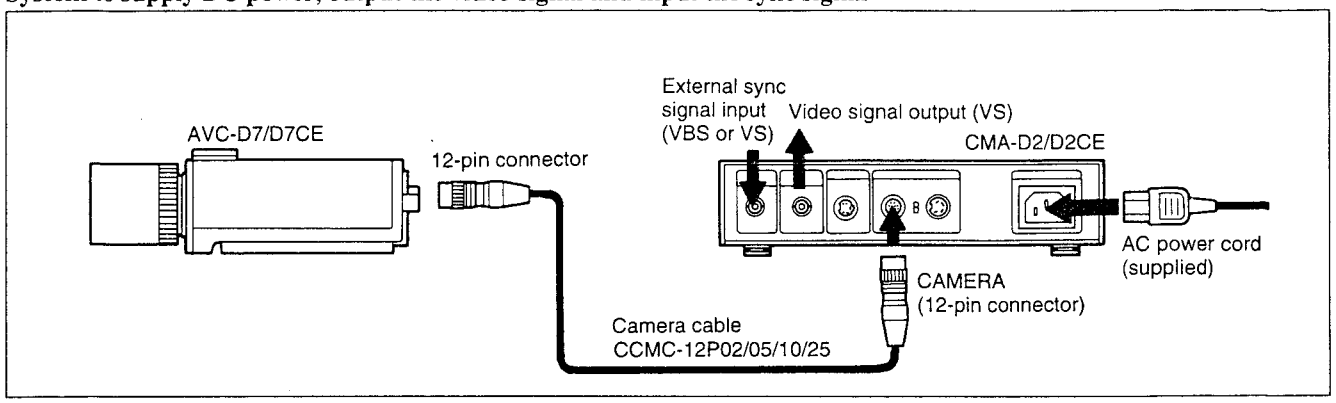


System to supply DC power only

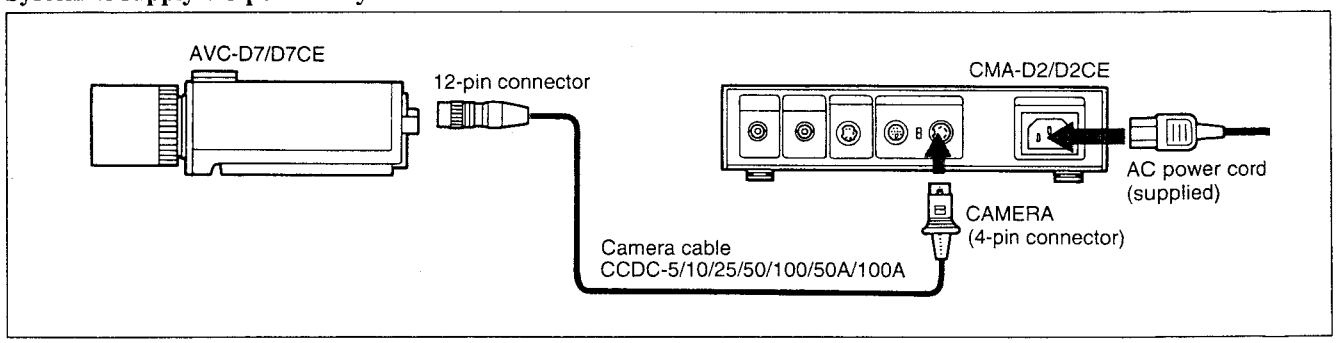


When connecting the AVC-D7/D7CE

System to supply DC power, output the video signal and input the sync signal

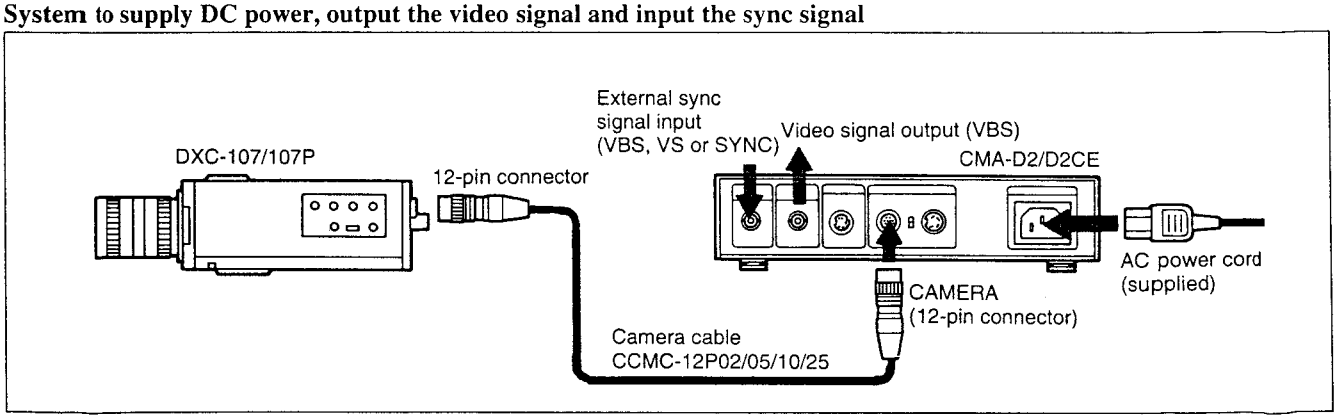


System to supply DC power only

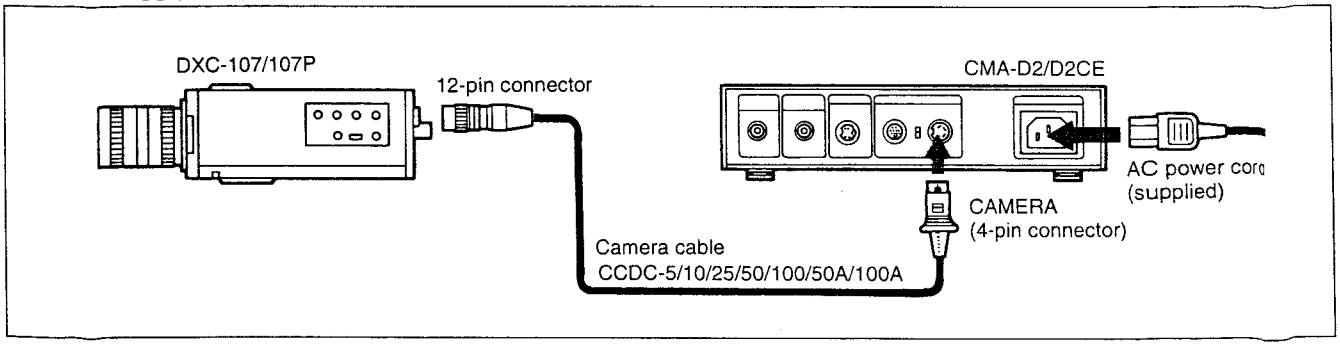


When connecting the DXC-107/107P

System to supply DC power, output the video signal and input the sync signal

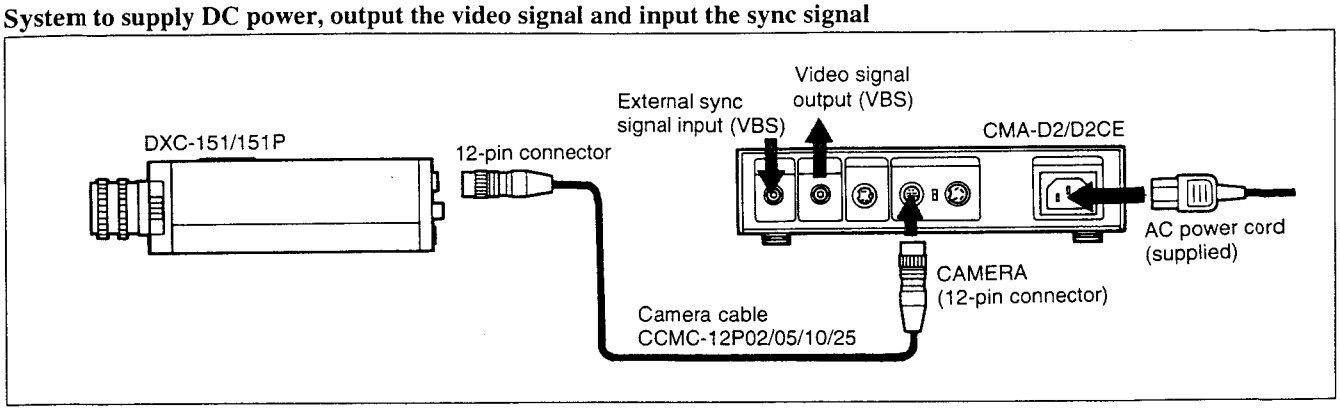


System to supply DC power only

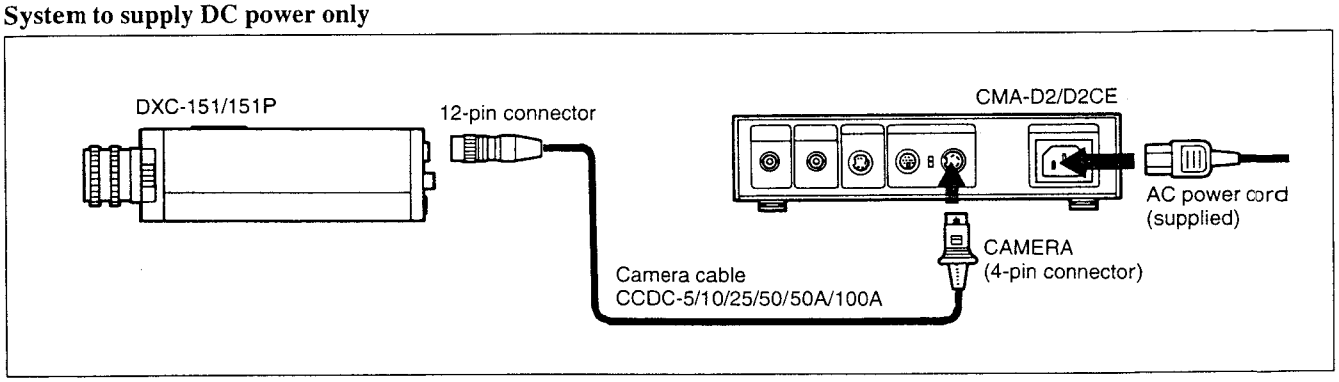


When connecting the DXC-151/151P

System to supply DC power, output the video signal and input the sync signal



System to supply DC power only

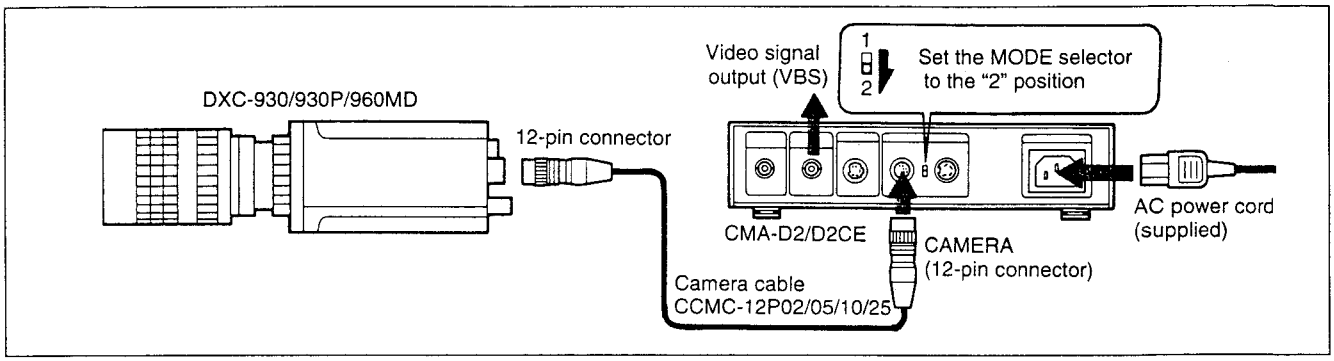


When connecting the DXC-930/930P/960MD

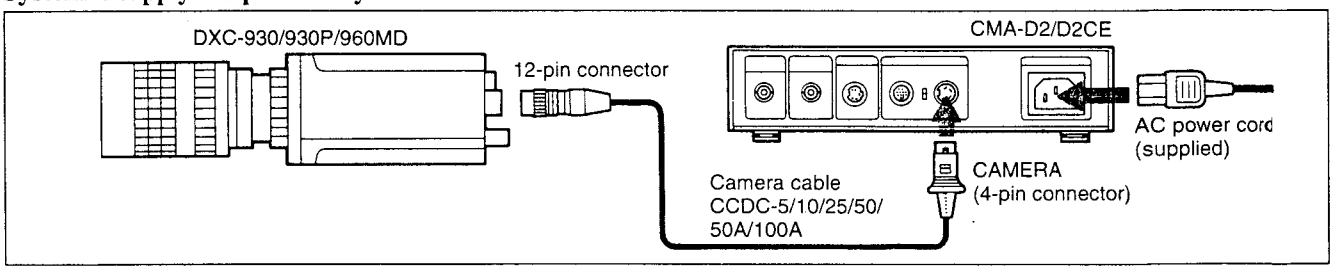
System to supply DC power and output the video signal

Note

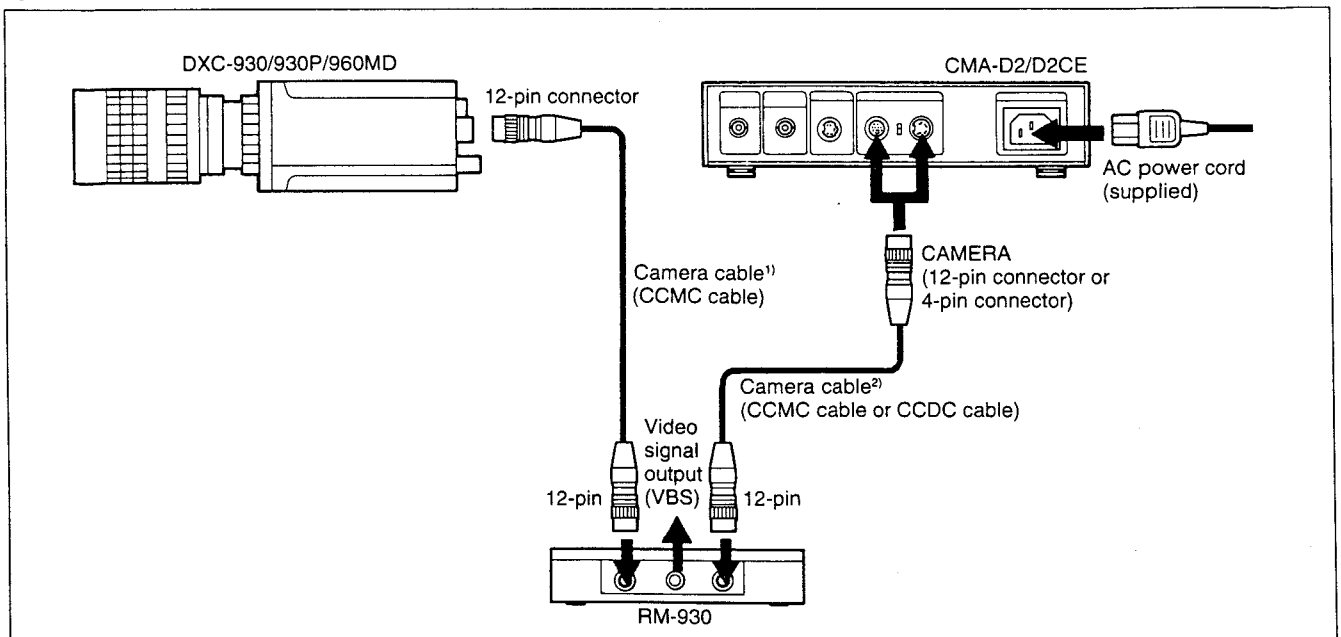
When connecting the unit to the DXC-930/930P/960MD using the CCMC camera cable, do not connect any connector to the GENLOCK IN connector and S VIDEO connector of the unit. Otherwise, the DXC-930/930P/960MD may not operate correctly.



System to supply DC power only



System to control the DXC-930/930P/960MD from the RM-930 remote control unit

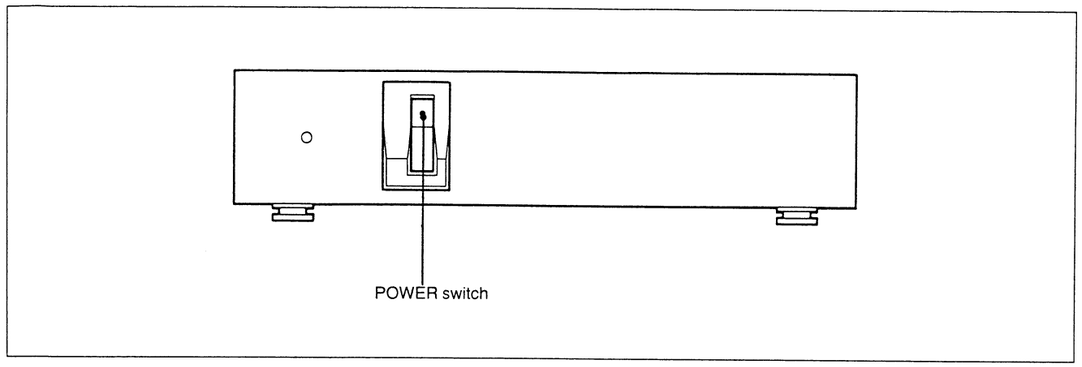


Note on cable [1] and cable [2] for the system to control the DXC-930/930P/960MD from the RM-930

Use one of the following combinations.

Camera cable [1]	Camera cable [2]
CCMC-12P02/05/10	CCMC-12P02/05/10/25 CCDC-5/10/25/50A/100A
CCMC-12P25	CCMC-12P02/05/10 CCDC-5/10/25/50A/100A

Operation



Set the POWER switch to ON.
The unit supplies DC power to the connected camera via the CAMERA connector.
The unit outputs video camera signals and inputs sync signal depending on the camera and the camera cable being used.

For details, see "Connections" on pages 5 to 8.

Specifications

General

Power requirements:
CMA-D2: 120 V AC, 50/60 Hz
CMA-D2CE: 100 to 240 V AC, 50/60 Hz
DC output 13 V DC, 1.3 A
Operating temperature
0°C to +40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to 140°F)
Dimensions 210 x 44 x 200 mm (w/h/d)
(8 3/8 x 1 3/4 x 7 7/8 inches)
excluding projecting parts
Mass 1.1 kg (2 lb 7 oz)

Input/Output Connectors

Input connector

GENLOCK IN (BNC type)

Output connectors

VIDEO OUT (BNC type) (1)
S VIDEO (4-pin mini DIN) (1)
CAMERA (4-pin) (1)

Input/output connector

CAMERA (12-pin) (1)

Accessories Supplied

AC power cord (1)
Operating instructions (1)

Design and specifications are subject to change without notice.

SECTION 2
OPERATION DESCRIPTION

2-1. POWER SUPPLY OPERATION DESCRIPTION

120 V AC (CMA-D2) or 100 to 240 V AC (CMA-D2CE) is rectified by the bridge diode (BR1) and smoothed by the electrolytic capacitor (C6).
And it is switched by the transistor (Q1), transformed by the transformer (T1), rectified by the diode (D51) and smoothed by the electrolytic capacitors (C51, C52), and it goes cut.
The shunt regulator (IC51) detects its output and it is fed back by the photocoupler (PC1).
So the output voltage is regulated.
This power supply has the overcurrent protector and the overvoltage protector for output.
The overcurrent protector controls the output current by detecting the primary current when the output is in the overcurrent state.
The overvoltage protector is using the zener diode (ZD51) at the output.

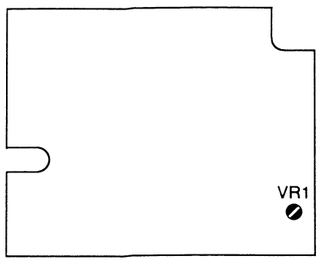
SECTION 3
ADJUSTMENT

EQUIPMENT REQUIRED

- DC Voltmeter

3-1. OUTPUT VOLTAGE ADJUSTMENT

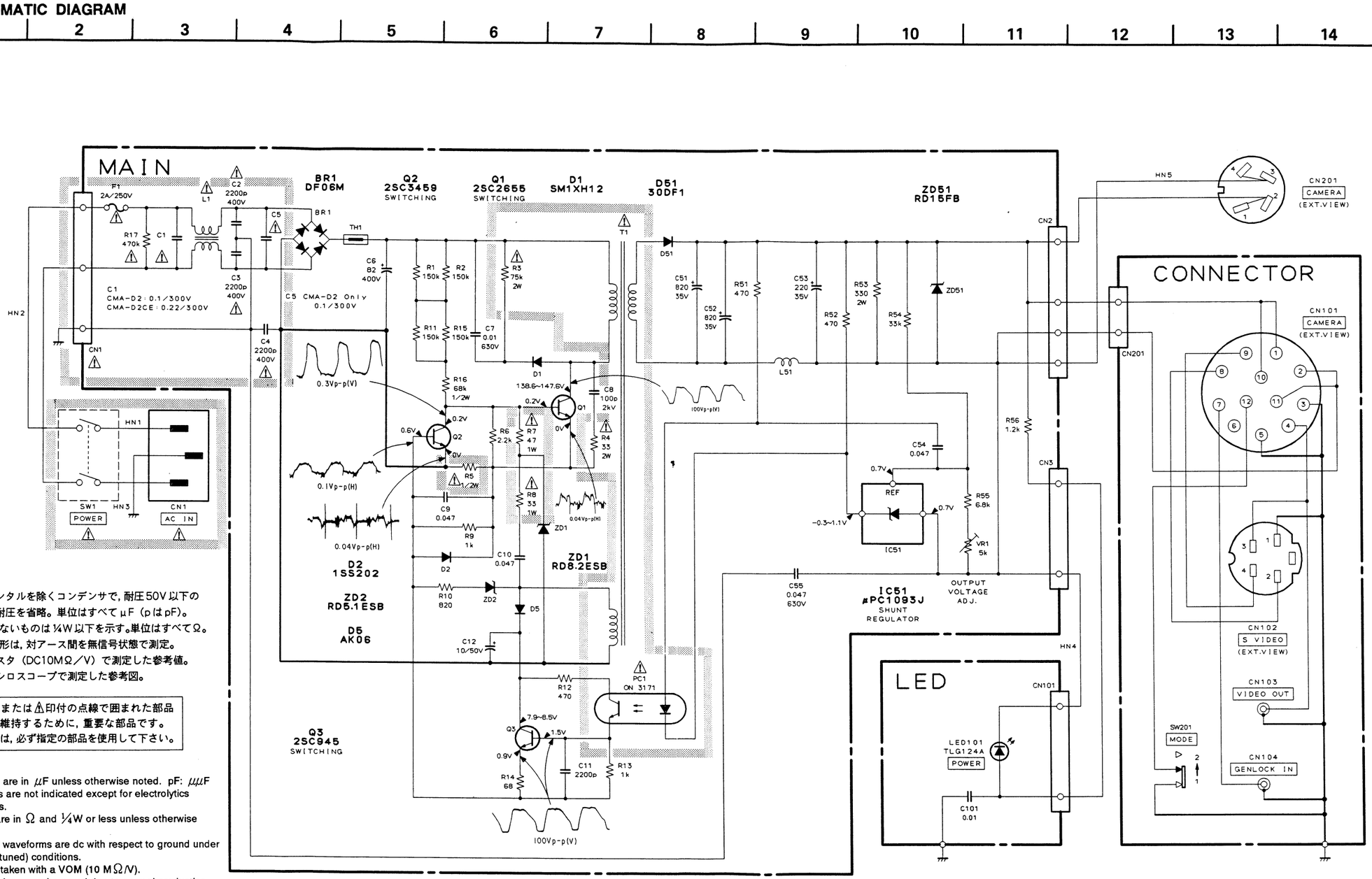
Measurement point : CAMERA (4-pin) pin 1 (+) pin 3 (–)
Adjustment point : ⊘ VR1
Specification : 13 ± 0.2 Vdc
Adjustment method : Feed the rated power supply to AC IN and be sure to don't be connected to the load.



Main board (Component side)

SECTION 4
DIAGRAMS

4-1. SCHEMATIC DIAGRAM



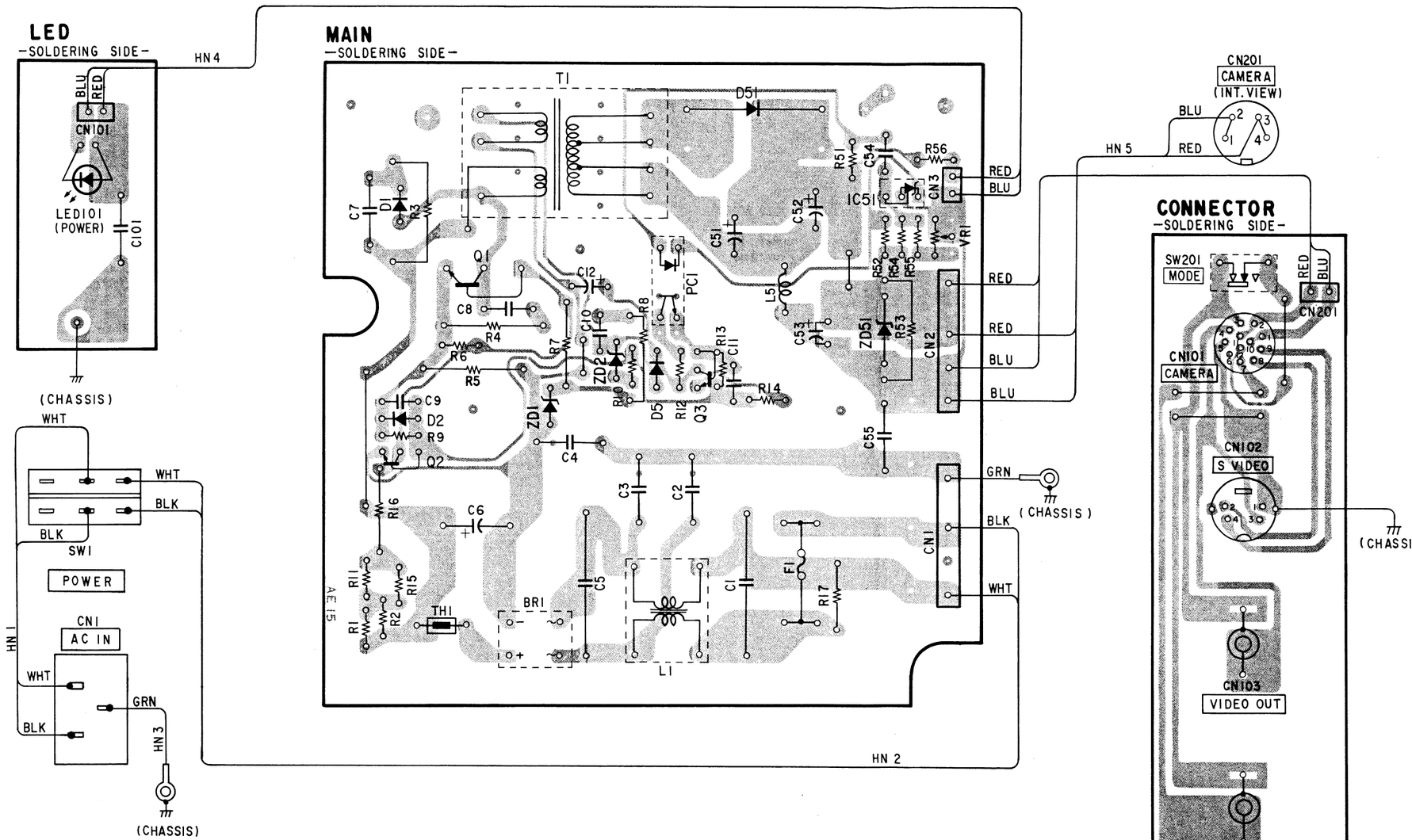
- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W以下を示す。単位はすべてΩ。
- 電圧および波形は，対アース間を無信号状態で測定。
- 電圧値は，テスタ（DC10MΩ／V）で測定した参考値。
- 波形図は，オシロスコープで測定した参考図。

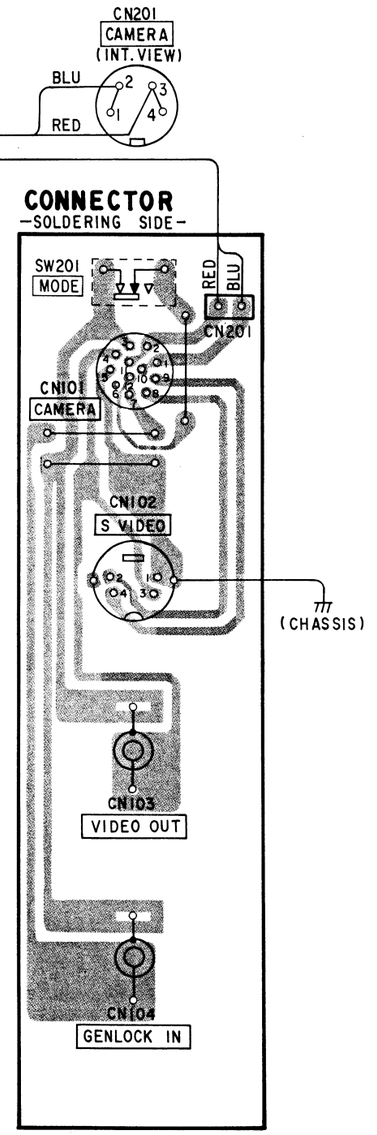
⚠印の部品，または⚠印付の点線で囲まれた部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用して下さい。

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10 MΩ/V). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.

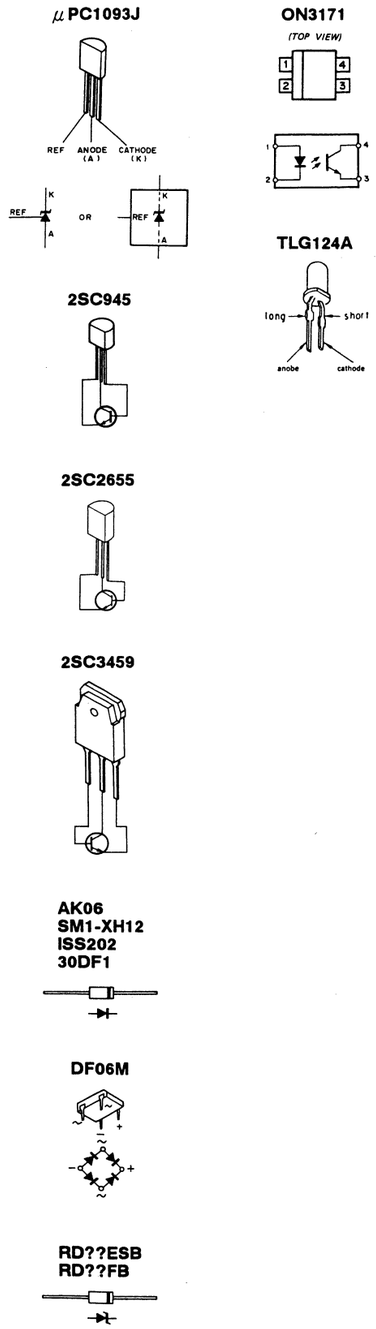
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

4-2. PRINTED WIRING BOARDS

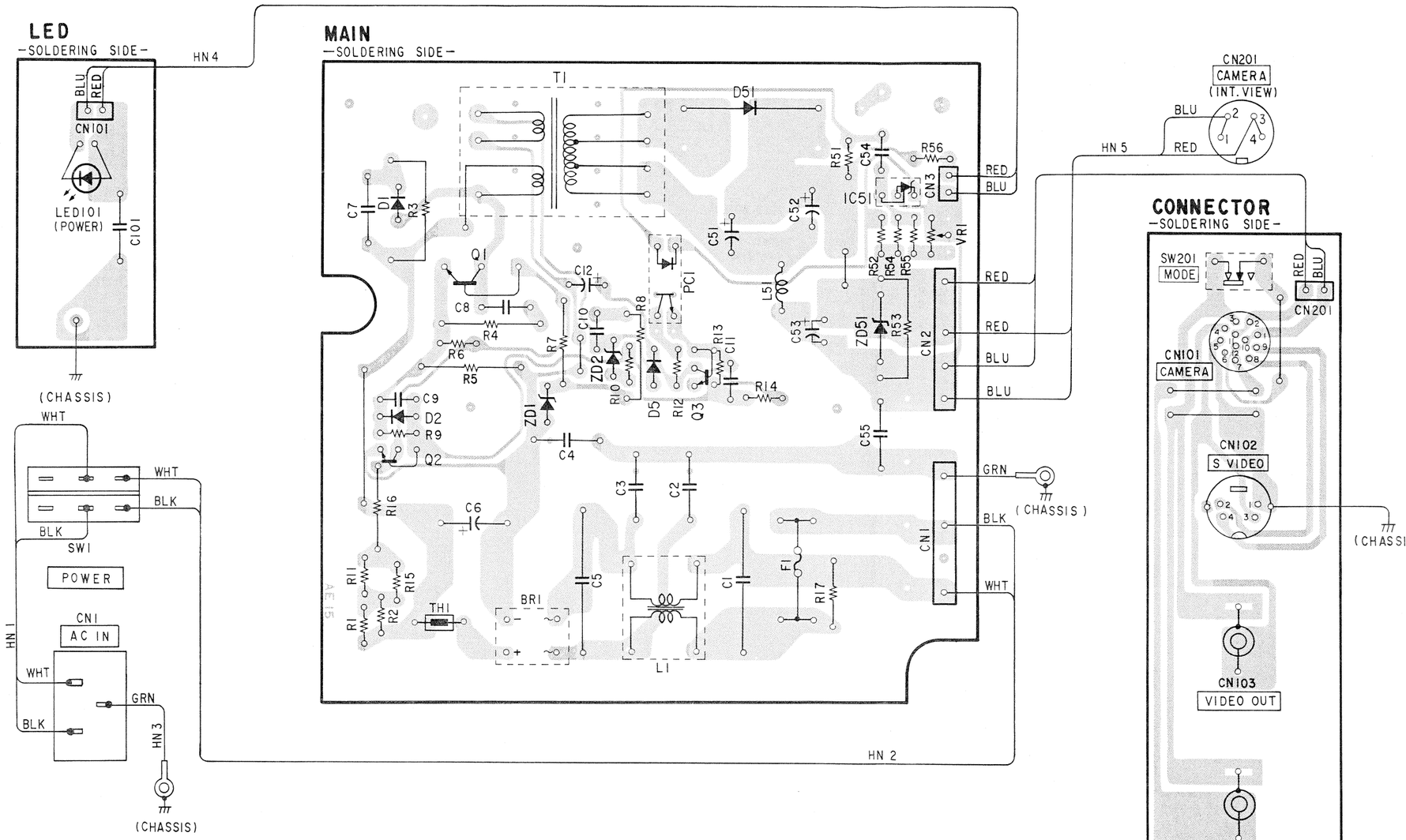




4-3. SEMICONDUCTORS

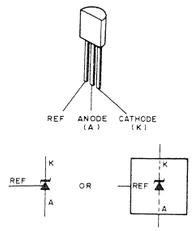


4-2. PRINTED WIRING BOARDS



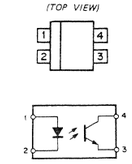
4-3. SEMICONDUCTORS

μPC1093J

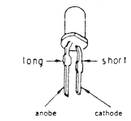


ON3171

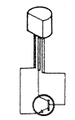
(TOP VIEW)



TLG124A



2SC945



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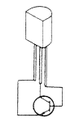
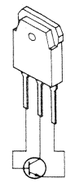
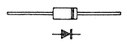


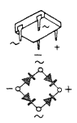
2SC3459



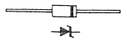
AK06
SM1-XH12
ISS202
30DF1



DF06M



RD??ESB
RD??FB



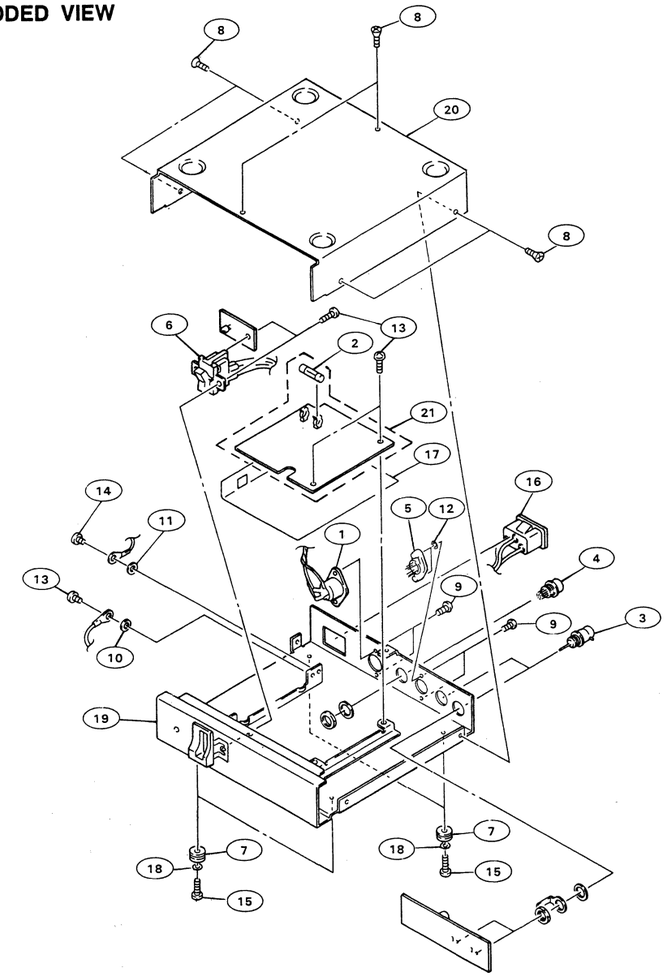
SECTION 5
REPAIR PARTS

【NOTE】

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- All resistors are in ohms.
- Items marked "o" in the SP column are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark ⚠ are critical for safety. Replace only with part number specified.

5-1. EXPLODED VIEW



No.	Part No.	SP	Description
1	1-526-531-00	o	SOCKET, DIN 4P
2	⚠1-532-825-11	s	FUSE, GLASS TUBE (CMA-D2)
	⚠1-576-228-11	s	FUSE (H.B.C.) 2A 250V (CMA-D2CE)
3	1-561-336-00	o	CONNECTOR, COAXIAL
4	1-562-221-71	o	CONNECTOR (ROUND TYPE) FEMALE 12P
5	1-565-301-11	s	CONNECTOR, ROUD TYPE 4P
6	⚠1-570-744-21	s	SWITCH, AC POWER
7	2-279-001-02	s	FOOT
8	7-621-759-42	s	SCREW +PSW 2.6X6
9	7-621-773-95	s	SCREW +B 2.6X6
10	7-623-308-07	s	WASHER LW 3, TYPE (A)
11	7-623-310-07	s	WASHER LW 4, TYPE (A)
12	7-623-954-01	s	WASHER 3.0, FIBER
13	7-682-546-04	s	SCREW +B 3X5
14	7-682-560-04	s	SCREW +B 4X6
15	7-685-546-14	s	SCREW +BTP 3X8
16	⚠9-903-887-01	o	INLET 3P
17	9-903-888-01	o	SHEET, INSULATING
18	9-903-889-01	o	STOPPER
19	9-903-890-01	o	CHASSIS
20	9-903-891-01	o	COVER
21	⚠9-903-894-01	o	SWITCHING REGULATOR (CMA-D2)
	⚠9-903-896-01	o	SWITCHING REGULATOR (CMA-D2CE)

5-2. ELECTRICAL PARTS LIST

CONNECTOR BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN101	1-562-221-71	o	CONNECTOR (ROUND TYPE) FEMALE 12P
CN102	1-565-301-11	s	CONNECTOR, ROUD TYPE 4P
CN103	1-561-336-00	o	CONNECTOR, COAXIAL
CN104	1-561-336-00	o	CONNECTOR, COAXIAL
SW201	1-552-509-00	s	SWITCH, DIP

LED BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C101	1-136-203-11	s	FILM 0.01uF 5% 630V
LED101	8-719-812-43	s	LED TLG124A, GRN

MAIN BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-533-037-99	s	HOLDER, FUSE
1pc	9-903-897-01	s	LABEL, FUSE
BR1	8-719-941-00	s	DIODE DF06M
C1	⚠1-136-345-21	s	FILM 0.1uF 20% 300V (CMA-D2)
	⚠1-136-346-11	s	FILM 0.22uF 20% 125V (CMA-D2CE)
C2	⚠1-164-503-11	s	CERAMIC 0.0022uF 20% 400V
C3	⚠1-164-503-11	s	CERAMIC 0.0022uF 20% 400V
C4	⚠1-164-503-11	s	CERAMIC 0.0022uF 20% 400V
C5	⚠1-136-345-21	s	FILM 0.1uF 20% 300V
C6	9-903-868-01	s	ELECT 82uF 400V 105°C
C7	1-136-203-11	s	FILM 0.01uF 5% 630V
C8	1-162-558-11	s	CERAMIC 100PF 10% 2KV
C9	1-136-161-00	s	FILM 0.047uF 10% 50V
C10	1-136-161-00	s	FILM 0.047uF 10% 50V
C11	1-130-475-00	s	FILM 0.0022uF 5% 50V
C12	1-123-875-11	s	ELECT 10uF 20% 50V
C51	9-903-869-01	s	ELECT 820uF 35V 105°C
C52	9-903-869-01	s	ELECT 820uF 35V 105°C
C53	9-903-870-01	s	ELECT 220uF 35V 105°C
C54	1-136-161-00	s	FILM 0.047uF 10% 50V
C55	1-136-207-11	s	FILM 0.047uF 5% 630V
CN1	⚠9-903-879-01	o	CONNECTOR, 3P (POWER INPUT)
CN2	9-903-878-01	o	CONNECTOR, 4P (POWER OUTPUT)
D1	9-903-865-01	s	DIODE SMIXH12
D2	8-719-107-94	s	DIODE 1SS202-1
D5	9-903-864-01	s	DIODE AK06
D51	8-719-230-02	s	DIODE 3DDF-2
F1	⚠1-532-825-11	s	FUSE, GLASS TUBE (CMA-D2)
F1	⚠1-576-228-11	s	FUSE (H.B.C.) 2A 250V (CMA-D2CE)
IC51	8-759-140-85	s	IC UPC1093J
L1	⚠9-903-876-01	s	INDUCTOR
L51	9-903-875-01	s	INDUCTOR
PC1	⚠9-903-867-01	s	PHOTO COUPLER ON3171
Q1	9-903-863-01	s	TRANSISTOR 2SC3459
Q2	8-729-265-52	s	TRANSISTOR 2SC2655-Y
Q3	8-729-194-57	s	TRANSISTOR 2SC945-P
R1	1-247-883-00	s	CARBON (SMALL) 150K 5% 1/4W
R2	1-247-883-00	s	CARBON (SMALL) 150K 5% 1/4W
R3	⚠9-903-871-01	s	METAL 75K 2W
R4	⚠1-215-883-11	s	METAL 33 5% 2W
R5	⚠1-216-361-00	s	METAL 0.22 5% 2W
R6	1-249-421-11	s	CARBON (SMALL) 2.2K 5% 1/4W
R7	⚠1-215-861-00	s	METAL 47 5% 1W
R8	⚠1-215-860-11	s	METAL 33 5% 1W
R9	1-249-417-11	s	CARBON (SMALL) 1K 5% 1/4W
R10	1-249-416-11	s	CARBON (SMALL) 820 5% 1/4W
R11	1-247-883-00	s	CARBON (SMALL) 150K 5% 1/4W
R12	1-249-413-11	s	CARBON (SMALL) 470 5% 1/4W
R13	1-249-417-11	s	CARBON (SMALL) 1K 5% 1/4W
R14	1-249-403-11	s	CARBON (SMALL) 68 5% 1/4W
R15	1-247-883-00	s	CARBON (SMALL) 150K 5% 1/4W
R16	1-260-121-11	s	CARBON (SMALL) 68K 5% 1/2W
R17	⚠1-260-131-11	s	CARBON (SMALL) 470K 5% 1/2W

(MAIN BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R51	1-249-413-11	s	CARBON (SMALL) 470 5% 1/4W
R52	1-249-413-11	s	CARBON (SMALL) 470 5% 1/4W
R53	1-215-889-00	s	METAL 330 5% 2W
R54	1-249-435-11	s	CARBON (SMALL) 33K 5% 1/4W
R55	1-249-427-11	s	CARBON (SMALL) 6.8K 5% 1/4W
R56	1-249-418-11	s	CARBON (SMALL) 1.2K 5% 1/4W
T1	⚠9-903-874-01	s	TRANSFORMER
TH1	9-903-873-01	s	THERMISTOR
VR1	9-903-872-01	s	RES, ADJ 5K
ZD1	8-719-110-08	s	DIODE RD8.2ESB
ZD2	8-719-109-85	s	DIODE RD5.1ESB2
ZD51	9-903-866-01	s	DIODE RD15FB

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
CN1	⚠9-903-887-01	o	INLET 3P
CN201	1-526-531-00	o	SOCKET, DIN 4P
HN1	9-903-880-01	o	HARNESS (INLET-POWER SW)
HN2	9-903-881-01	o	HARNESS (POWER SW-POWER INPUT)
HN3	9-903-882-01	o	HARNESS (INLET FG-GND)
HN4	9-903-883-01	o	HARNESS (LED-CN101)
HN5	9-903-884-01	o	HARNESS (POWER OUTPUT-CN201)
SW1	⚠1-570-744-21	s	SWITCH, AC POWER

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-534-827-14	s	CORD, POWER (CMA-D2)
1pc	⚠1-590-910-11	s	CORD SET, POWER (CMA-D2CE)
2pcs	3-178-736-01	o	CUSHION
1pc	3-178-739-01	o	INDIVIDUAL CARTON (CMA-D2)
1pc	3-178-740-01	o	INDIVIDUAL CARTON (CMA-D2CE)
1pc	⚠3-755-893-11	s	MANUAL, INSTRUCTION